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“Informal Comments”

Re: International Application No. PCT/JP2004/012890
International Filing Date: 30 August 2004
Applicant: Matsushita Electric Industrial Co., Ltd.
Agent: IKEUCHI SATO & PARTNER PATENT ATTORNEYS
Our Ref.: H2169-01

Dear Sir:

The Applicant, who received the International Search Report and the Written Opinion of the ISA relating to the above-identified International Application transmitted on 14 December 2004, hereby submits informal comments as in the attached sheets.

Sincerely yours,



IKEUCHI SATO & PARTNER PATENT ATTORNEYS
Representative Partner
Hiroyuki IKEUCHI

Attachment:

(1) Informal Comments 2 sheets

Informal Comments

1. With regard to claim 5

Document 1 (JP 9(1997)-230192 A) discloses a lens barrel in which a bumper surface 17m capable of mating with a ring member 18b is provided on a lateral portion of a cam groove 17b of a cam barrel 17. In Document 1, in order to prevent each portion of the lens barrel from being damaged by an impact applied from a front side, the bumper surface 17m is provided on a side of an imaging element (an image plane side) with respect to the cam groove 17b.

In contrast, the second protrusion recited in claim 5 of the present application is “provided on at least an object side in an optical axis direction of a portion of the cam groove with which the cam pin mates when the driving frame is retracted.” This achieves an effect of “preventing the cam pin 16 from being disconnected from the cam groove 18 in the case where the first group driving frame 3 is subjected to the force toward the object side when the collapsible lens barrel is collapsed. Therefore, even when the camera is dropped by a user when it is not in use, for example, it still is possible to maintain a sufficient strength” as described at page 23, line 28 to page 24, line 3 of the description.

As described above, the position of the second protrusion with respect to the cam groove in claim 5 of the present application is opposite to that of the bumper surface 17m with respect to the cam groove in Document 1, and the effect obtained by claim 5 of the present application is different from that in Document 1. Therefore, claim 5 of the present application has a novelty and an inventive step over Document 1.

2. With regard to claim 2

Document 2 (JP 2002-90611 A) discloses a lens barrel providing a demating prevention groove that mates with a cylindrical roller along a cam

groove that mates with a tapered roller. When an external force in an optical axis direction is applied to the lens barrel, the cylindrical roller contacts a wall surface of the demating prevention groove, making it possible to prevent the demating of the tapered roller and the cam groove.

In contrast, in the lens barrel according to claim 2 of the present application, the cam pin that mates with the cam groove and the demating prevention pin that mates with the demating prevention groove "have an identical shape including a cylindrical portion and a tapered portion at its tip." This achieves an effect in which "since the cam pin ... and the demating prevention pin ... can be made of common components, it is possible to reduce the number of components and avoid the complication of assembling processes" as described at page 7, lines 7 to 10 of the description.

In Document 2, since the tapered roller that mates with the cam groove and the cylindrical roller that mates with the demating prevention groove have different shapes, the above-noted effect of the present invention cannot be obtained.

Even if the invention described in Document 2 is applied to the invention described in Document 1, it would be possible neither to arrive at the above-mentioned configuration according to claim 2 of the present application nor to expect the above-mentioned effect according to claim 2 of the present application. Consequently, claim 2 of the present application has an inventive step over Documents 1 and 2.

3. With regard to claims 1 and 3

Document 3 (JP 2001-324663 A) describes a lens barrel having a cam groove 2a provided in a fixed barrel 2 and a follower pin 27 provided in a moving cam ring 34 that mate with each other, in which an abutment means 2b further is provided in the fixed barrel 2 and a collar means 34d is provided in the moving cam ring 34 in such a manner as to be positioned on an object side with respect to the abutment means 2b in a range from a wide-angle

position to a telephoto position in which a picture can be taken. When an external force is applied to the lens barrel, the collar means 34d contacts the abutment means 2b, making it possible to prevent the follower pin 27 from becoming disengaged from the cam groove 2a.

In contrast, in the lens barrels according to claims 1 and 3 of the present application, the cam pin that mates with the cam groove and the demating prevention pin that mates with the demating prevention groove “have an identical shape including a cylindrical portion and a tapered portion at its tip.” This achieves an effect in which “since the cam pin ... and the demating prevention pin ... can be made of common components, it is possible to reduce the number of components and avoid the complication of assembling processes” as described at page 7, lines 7 to 10 of the description.

Regardless of how the inventions described in Documents 1 to 3 are combined, it would be possible neither to arrive at the above-mentioned configuration according to claims 1 and 3 of the present application nor to expect the above-mentioned effect according to claims 1 and 3 of the present application. Consequently, claims 1 and 3 of the present application have an inventive step over Documents 1 to 3.

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